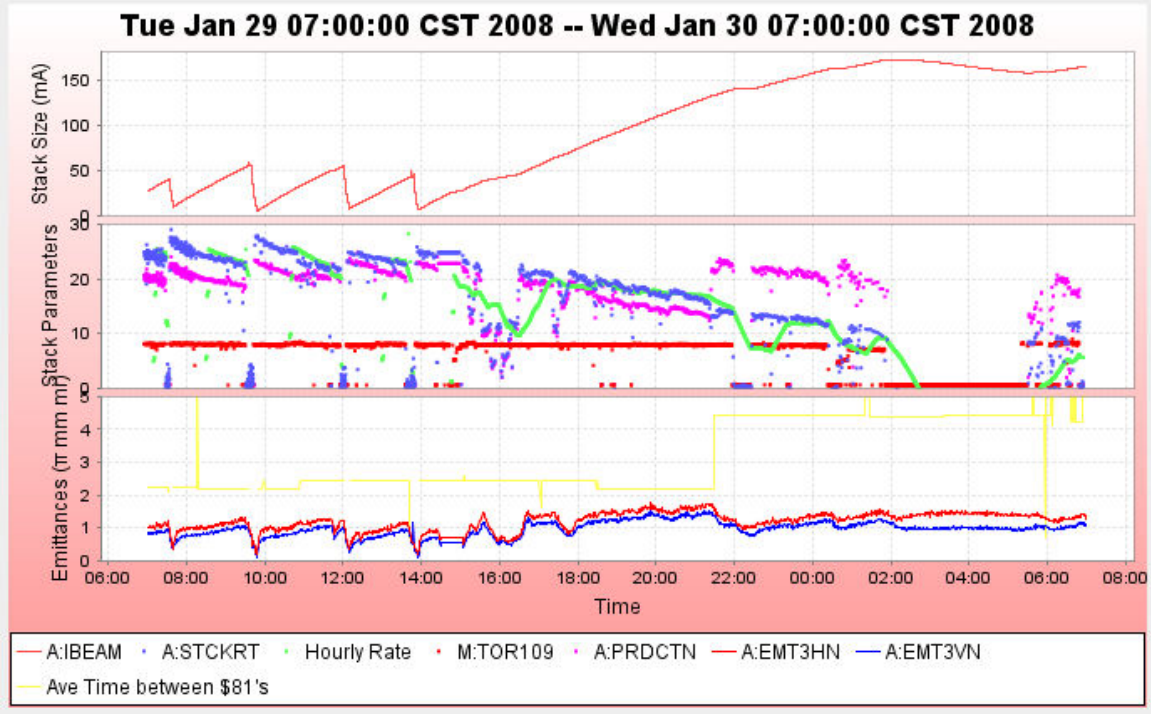
2008-01-30 Wednesday Pbar Morning Notes

Tuesday, January 29, 2008
1:47 PM

Stacking

- Stacked and transferred as normal on the day shift.
- The last set of transfers were around 2pm. We stacked to a large stack afterwards.
- Beam on target averaged 7.4e12 at 11 turns overnight.
  - After the owl shift Linac downtime, we stacking $23s gave us closer to 7.5e12.
  - When NuMI turned off, the $29s were closer to 7.6e12.
- During the day shift we set a stacking record
  - 25.19mA Tue Jan 29 10:47:54 CST 2008
  - Note that the web reported 25mA this morning. This was found to be due to a cut placed on the data that was throwing away data points larger than 25mA. This cut has been raised.
- We stacked a total of 313mA for the day.
- At the end of the day shift, we lost the Debuncher bands 3 and 4 cooling system.
  - The pickups use cryogenically cooled preamps, and the systems were off on an apparent cryo interlock, but the frig was fine.
  - This led us to PLC04 out at AP10.
  - While trying to get ahold of the expert who built the cryo interlocks board, we found a bad fuse in the PLC fuse board that interface the cryo interlocks for bands 3 and 4.
  - Once the fuse was replaced, the system came back to life.
  - We are going to have PLC experts look closer at the system today.
- Our peak stack reached 172.5mA at about 2am.
  - We ran the ion flusher overnight, but things did not go as well as we would have hoped.
  - Though the emittances didn't show instabilities, we had very poor lifetime losing about 15mA in the 2.5 hour Booster chopper downtime.
  - We looked at this this morning. Increasing the ARF2 voltage may have helped. This creates a coherent spike on the longitudinal display, confusing tune measurement. Have to find a good balance value.



Transfers

- Jim Morgan noticed during the last reverse proton beam line tune-up that some AP3 BPMs were noisy. A bad power supply in the BPM system was replaced and they appear to be working again.
- We unstacked 162mA in 14 transfers over 4 sets.
  - Average Acc to MI efficiency was 98.7%
  - Average Acc to RR efficiency was 98%.
- Transfers 7007 and 7008 each had a transfer with a 0 for I:BEAMS

Column 1 Pbar Transfer Shot #	Column 2 Recycler Shot #	Column 4 Transfer Time		Column 21 A:IBEAMB sampled on $91 (A:IBEAM1), E10	Column 22 A:IBEAMB sampled on $94 (A:IBEAM2), E10	Unstacked (mA)	Column 23 R:BEAMS (R:BEAM E0[0]) pre xfer E10	Column 24 R:BEAM (R:BEAM E0[1]) post xfer, E10	Stashed	Acc to RR Eff	Column 27 MI DCCT SMALL BEAM (I:BEAMS), E10	Column 28 MI Before Extraction (I:BEAM6), E10	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets
		1/30/2008	7:00:00 AM			161.601			159.15	0.98	132.266	159.568	81.85%	98.74%	14	4
7010	4473	Tuesday, January 29, 2008	1:49:22 PM	42.188	6.988	35.200	314.305	350.540	36.24	1.03	34.845	34.794	98.99%	98.85%	3	1
7009	4472	Tuesday, January 29, 2008	12:01:36 PM	55.388	8.188	47.200	272.989	318.713	45.72	0.97	45.654	46.247	96.72%	97.98%	4	1
7008	4471	Tuesday, January 29, 2008	9:39:55 AM	54.988	5.587	49.401	227.670	276.290	48.62	0.98	33.082	49.291	66.97%	99.78%	4	1
7007	4470	Tuesday, January 29, 2008	7:33:42 AM	39.988	10.188	29.800	202.081	230.648	28.57	0.96	18.685	29.236	62.70%	98.11%	3	1

Studies

- Debuncher Cooling
  - Tried putting in Debuncher Band 4 trombone changes that should have helped.
  - The momentum spread looked larger after the change,

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- Morning Study one shot canceled due to unforseen sequencer problems.

Requests

- Install C183 card at AP0 Pbar Crate 70 slot 20 (AP0). This is to provide on/off control for the PBKICK front end.
  - Worklist entry: http://www-ad.fnal.gov/cgi-worklist/worklist_form.pl?id=7444
  - Also in the crate:
    - Slot 1: C119 for D:Q926
    - Slot 4: C465 for D:H926
    - Slot 5: C119 for D:AP0CD0
    - Slot 6: C119 for D:AP0CD1
    - Slot 7: C119 for D:AP0CD2
    - Slot 8: C180 for D:BSC700
    - Slot 9: C184 for M:USWSTA, M:USWSTB
- Target air blower PM at AP0
- PreVault Sump Samples
- Inspect all AC units at AP0.
- Repair D:ESEP O/I trip circuit
- Replace relays in PSs D:Q702, D:Q715, A:QT606

Pbar

ID	Requestor	Title	Location	Type
7362	Leveling, Anthony	Inspect all AC units FESS has an annual requirement for planned maintenance on AC units.	AP0 service building	FESS / Utilities
7427	Leveling, Anthony	Target air blower PM The target air blower needs an oil change and air filter change. Stacking needs to be off while the blower is de-energized for the oil change.	AP0 service building	Target Station
7444	Leveling, Anthony	Install 183 card A CAMAC 183 card is to be installed in PBAR crate 70 slot 20. The purpose of this card is to enable remote power cycling of the sweeping system front end PBKICK.	AP0 service building	Target Station
7394	White, Dale	Sump samples Sump samples	Pre-Vault	ES&H / Interlocks
7358	Wisner, Bernard	Repair DESEP O/I trip circuit. Repair the power supply over current trip circuitry, in septum D:ESEP.	AP10	Kicker Systems
7359	Wisner, Bernard	Replace relays in PS The phase balance relay modules, need to be replaced with rebuilt units, in the following Dynapower PS's. D:Q702, D:Q715 and D:QT606. These older relay modules are starting to fail, and should be replaced as part of preventive maintenance on the PS's.	AP0, AP10, F27	Power Supply

Other

- Paul's Numbers
  - Most in an hour: 25.00 mA at Tue Jan 29 10:51:48 CST 2008
  - Best: 25.00 mA on 30-Jan-08
  - Average Production 15.79 e-6/proton Best: 23.53 e-6/proton on 11/11/2007
  - Average Protons on Target 7.09 e12 Best: 8.77 e12 on 07/24/2007
  - Largest Stack 172.49 mA Best: 271.01 mA on 11/14/2007
  - Update:
    Tue Jan 29 10:47:54 CST 2008 25.19486011123712
- Al's Numbers
  - Stacking
    - Pbars stacked: 313.07 E10
    - Time stacking: 19.67 Hr
    - Average stacking rate: 15.92 E10/Hr
  - Uptime
    - Number of pulses while in stacking mode: 26053
    - Number of pulses with beam: 24181

        - Number of pulses with beam: 24181
        - Fraction of up pulses was: 92.81%

        - The uptime's effect on the stacking numbers
        - Corrected time stacking: 18.26 Hr
        - Possible average stacking rate: 17.15 E10/Hr

    - Recycler Transfers
        - Pbars sent to the Recycler: 161.16 E10
        - Number of transfers : 14
        - Number of transfer sets: 4
        - Average Number of transfer per set: 3.50
        - Time taken to shoot: 00.77 Hr
        - Time per set of transfers: 11.57 min
        - Transfer efficiency: 99.91%

    - Other Info
        - Average POT : 7.30 E12
        - Average production: 17.75 pbars/E6 protons

- Ralph Meeting

  Good afternoon,
  I have reserved the Penthouse for 1:30 PM tomorrow Wednesday, Jan. 30 to discuss options for improving the stability of the Debuncher momentum notch filters. During our studies, we found that the bypass notch filter tends to wander, making accurate transfer functions difficult. We also inspected the temperature performance of the optical notch filter as it appears to be wandering which results in the need for larger ARF1 voltage and reduced stacking efficiency. Please come to the meeting prepared to discuss the following:
  1. What are the accurate details of the installed hardware, i.e. what type temperature controller, thermal read back accuracy, settings, etc.
  2. options for new optical spools with Sumitomo fiber that should make a factor of ten improvement in temperature stability.
  3. any other detail about the existing system.
  See you then,
  Ralph